

COASTAL LITHOSOMES OF THE NORTH AND CENTRAL TEXAS COAST AND INNER CONTINENTAL SHELF

F. P. Siringan¹, J. B. Anderson¹, L. R. Bartek¹, and M. A. Thomas²

ABSTRACT

High resolution (uniboom and 3.5 kHz) seismic data, gravity, piston and vibracore data, and borehole logs from the northern and central Texas coast and inner continental shelf were used to examine the extant coastal lithosomes and their preservation of the continental shelf.

The occurrence of preserved coastal lithosomes changes from the northern to the central Texas inner continental shelf regions. Few preserved coastal lithosomes exist on the northern shelf. Those that do, occur within the incised Trinity/Sabine river valley in the form of discrete pods of tidal inlet and tidal delta deposits. Regional lines crossing the Lavaca River incised-valley on the central shelf show an apparent absence of preserved coastal lithosomes. This may have resulted from none of the seismic profiles intersecting a preserved coastal lithosome, or alternatively, ravinement completely reworked the coastal lithosomes. The presence of a thick (~2 m average thickness) sandy facies above the ravinement surface on these lines may reflect reworking of the coastal lithosomes.

The Trinity/Sabine and Lavaca rivers, similar low-sediment yield systems, respond to the same eustatic events but exist in shelf segments having different gradients. Variation in shelf gradient may cause the contrast in the preservation of coastal lithosomes in these two regions of the shelf; shelf gradient offshore of the Lavaca River is more than twice that offshore of Trinity River.

Higher sediment supply may increase the preservation potential of coastal lithosomes but also may result in the formation of a different coastal facies. The Brazos River system, a system with relatively higher sediment yield, exhibits the formation and preservation of wave-dominated deltas.

In the mid-shelf to outer shelf, the lines crossing the possible trace of Lavaca River incised valley show indications of preserved spit/inlet deposits in the form of accretionary clinoforms.

A detailed grid of high resolution seismic data and vibracores will be collected during summer of 1991 to examine the shoreface architecture of extant barrier islands and to map in detail the incised Lavaca River valley and relate the valley and relate the valley-fill to the overlying marine sediment cover.

¹ Dynamac Corporation, Rockville, Maryland, 20852

² Shell Western Exploration and Production, Houston, Texas, 77210